THE FOREST WORKER

SEPTEMBER, 1925.

FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON D. C.

THE FOREST WORKER

September, 1925

Published bimonthly by the Forest Service,
U. S. Department of Agriculture, Washington, D. C.

CONTENTS

ANNOUNCEMENTS

Wood Utilization Courses Offered

Another group of instructional courses for the benefit of the lumber-manufacturing and wood-using industries will be given at the Forest Products Laboratory, Madison, Wis., in September, 1925. The courses offered are as follows: Gluing of wood, September 14 to 19 (cooperative fee, $100); kiln drying of lumber, September 21 to October 2 (cooperative fee, $150); boxing and crating, September 21 to 26 (cooperative fee, $100). Attendance in each course is limited to 18. Each course will require the full time of the men attending, but the glue and kiln drying or the glue and box courses may be taken successively. Further information may be obtained from the Director, Forest Products Laboratory, Madison, Wis.

- - - - - - -

Positions Open in State Forestry August 15

One of the southern Appalachian States is seeking a man for appointment as State forester, and another State in District 7 needs both a State forester and an assistant State forester. The district forester at Washington has been requested to recommend men for these positions.

A position as farm forester is offered by the Texas Forestry Department. During the first year the present incumbent will supervise the work of the new appointee, but at the end of that time the latter will assume entire charge of the farm forestry work of the State. The salary is $2,800. Applicants should address E. O. Siecke, State Forester, College Station, Texas.

A technically trained forester is needed to take charge of fire control work in the North Carolina district surrounding New Bern. The duties connected with the position include general management of this work within the district and the development of additional cooperation with the counties and with private organizations. The position carries an initial salary of $2,000. Anyone interested in this opening should correspond directly with State Forester J. S. Holmes at Raleigh.

Openings for extension foresters are reported from Louisiana, Alabama, and North Carolina.

- - - - - - - -

Wood-Utilization Conference for New York State

A wood-utilization conference for the State of New York is to be held at Syracuse on November 12. The Empire State Forest Products Association and the New York State College of Forestry are cooperating in plans for this meeting, at which a representative attendance of manufacturers and users of forest products is expected. The meeting-place will be the College of Forestry Building.

- - - - - - - -

Cash Prizes for Grade-Marking Suggestions

Cash prizes amounting to $1,000 are offered by the Southern Pine Association, New Orleans, La., for the best suggestions for practical and economical methods and devices for handling and grade-marking southern pine lumber and timber. Anyone may enter. Six prizes are offered--$500 for first, $250 for second, $100 for third, and $50 each for fourth, fifth, and sixth. Suggestions must be in the hands of the association before October 1, 1925.

At present the association mills that are grade-marking are using a rubber stamp with ink pad and the grade is marked on the end of each piece of lumber. As the lumber comes from the planer it is marked with a crayon by the grader, then placed in racks and transferred to individual trucks according to grades. The lumber is stamped while on the trucks, before being moved to bins.

This method of grade-marking is unsatisfactory because the rubber stamp does not make an indentation on the end of the boards and hence does not insure permanency and legibility. Contestants should bear this in mind, in addition to practicability and labor-saving, as these features will determine awards.

- - - - - - - -

STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

Georgia Passes Forestry Law

After years of effort by the Georgia Forestry Association, a forestry administrative act has passed the legislature of that State and on August 14 received the signature of Governor Walker.

The act establishes a State board of forestry consisting of the governor, secretary of State, State geologist, director of extension of the State college of agriculture, and five citizens to be appointed by the governor. A provision that is unique in State forestry legislation directs that the board shall include one representative of the women's civic organizations of the State. The other four appointed members are to represent farming, lumbering and lumber manufacturing, the naval stores industry, and the timberland owning interests. No compensation is allowed for services, but actual traveling expenses will be refunded. Two regular meetings are to be held each year.

A State forester is provided for who shall be the secretary of the board. The duties of the board and the State forester as prescribed are broad and are aimed to develop and protect the forest resources of the State and to provide for cooperation with the Federal Government. The State forester shall have had technically training, and at least two years of experience in technical and administrative work. Headquarters shall be at Atlanta.

The board may acquire forest lands by purchase or gift. Its policy is clearly defined as encouraging the reforestation of cutover lands and the culture of timber on all lands not better suited for farming or other purposes.

Provision is made for appointing sheriffs, constables, marshals, county demonstration agents, and others as deputy forest wardens.

A State forestry fund is to become available from occupational licenses and privilege taxes on business having to do with timber and other forest products. The income from these sources, which is the result of earlier legislation, is to be used for no other purpose than the administration of this act. Fines and forfeitures arising under this act shall also go into the forestry fund.

- - - - - - -

Wisconsin Passes National Forest Enabling Act

An act signed by the Governor of Wisconsin on July 3 empowers the United States to acquire lands not exceeding 100,000 acres in the State of Wisconsin, by purchase or otherwise, for the purpose of establishing national forests, and grants to the Federal Government all rights necessary for the proper control and administration of lands so acquired.

- - - - - - -

Rounding Out the Cherokee State Forest, Texas

Citizens of Cherokee County, Texas, are raising by subscription a fund to buy the 560 acres needed to round out the 2,150-acre State forest recently established in that county. The State forestry department will contribute $6 an acre toward the purchase of this additional area.

The Cherokee State Forest according to estimates of State Forester Siecke has on it between 6 and 7 million feet of merchantable second-growth shortleaf pine and in six years' time will have a stand worth $60,000. It presents a splendid opportunity for demonstration work along the lines of selective cuttings, thinning of shortleaf pine during various stages of growth, and the influence of fire upon reproduction and growth. Active work in putting this forest and the Kirbyville State Forest, in the long-leaf region, under administration will be begun September 1. An appropriation of $7,000 was made available for this purpose by the State legislature.

- - - - - - -

More and Better State Forestry for Illinois

The Legislature of Illinois at the session concluded in June, 1925, enacted two laws pertaining to forestry. One creates a department of conservation charged with the promotion of fishing, hunting, wild-life protection, prevention of stream-pollution, and forestry. The other provides that this department of conservation shall have control and management of the State forests to be purchased from an appropriation authorized and amounting to $100,000 for the biennium commencing July 1, 1925.

Heretofore, the forestry work of the State of Illinois has been carried on under the supervision of the natural history survey. The passage of these laws means material enlargement in the forestry program of the State.

- - - - - - -

A Forest, Parks, and Conservation Commission for West Virginia

At the last session of the Legislature of West Virginia an act was passed creating a State forest, parks, and conservation commission, to be composed of the governor, the commissioner of agriculture, the director of agricultural extension, the State geologist, and the chairman of the fish and game commission. This commission is to make a survey of the forest and game resources of the State, with the object of framing suitable conservation measures for the consideration of the legislature at its next session.

The existing forestry law was amended to enable the State to propagate and distribute forest trees in cooperation with the Federal Government under the Clarke-McNary Law.

A compulsory fire patrol act was also passed requiring owners of timberland to furnish a sufficient fire patrol. In the event of failure of owners to patrol their lands adequately the game and fish commission may cause such lands to be patrolled and charge the cost against the owners, provided the aggregate amount so charged does not exceed one cent per acre per year.

- - - - - - -

Planters of Pennsylvania

In the spring of 1925 Pennsylvania planted a State nursery tree for nearly every man, women, and child in the State--8,600,000 trees for 8,700,000 population (census of 1920). For every square mile of territory 190 trees were planted. Municipalities to the number of 23; 16 churches, homes, and private hospitals; 34 mining companies; and 39 water companies planted trees from the State nurseries, in addition to individuals who wielded the mattock for more than 5 million little trees. The largest number of trees sent to any one applicant was 100,000.

- - - - - - -

The Calvin Coolidge Forest

The State of Vermont has added to its holdings a forested tract of 175 acres in the town of Plymouth, adjoining the birthplace of President Coolidge. This brings the total number of the State's forests to 15 and their aggregate area to 30,300 acres. A considerable portion of the area is abandoned pasture land which will be planted to spruce and pine next spring. It has excellent possibilities for forestry demonstration. The Governor has named it "The Calvin Coolidge State Forest."

- - - - - - -

New Jersey Adds to State Forests

During the fiscal year 1925, 1,958 acres of forest land were added to the State forests of New Jersey, bringing their total area up to 19,145 acres. The new acquisitions include 1,589 acres added to the Lebanon Forest and 369 acres on the Stokes. Further acquisitions made possible by appropriations for the present fiscal year will be completed as rapidly as possible.

- - - - - - -

Reforestation Trophy Offered to Sportsmen

A handsomely engraved silver cup has been offered to the game clubs of the State of New York by James S. Whipple, who as Forest, Fish, and Game Commissioner introduced the policy of distributing young forest trees at cost to the people of the State for reforestation purposes. It will be known as the Whipple Reforestation Cup, and will be presented each year to the game club that plants the largest number of forest trees. Any club winning the trophy three consecutive times will obtain permanent possession of it. The award will be made by the New York State College of Forestry at Syracuse University. The first award will be for the season of 1926.

Cooperation between farmers and organized hunters and fishermen in many communities of New York has led to large tree-planting operations during the last two or three years. The sportsmen furnish the trees and most of the labor, the farmers giving the use of their unproductive land.

- - - - - - -

Foresters and Birds Cooperate

Forest Rangers Jenckes and Fish of the Tioga Forest District of Pennsylvania have for a number of years been building small bird houses, especially for wrens. They have erected the houses at many points throughout the forest tree plantations. Each house was occupied soon after erection. Field observations by the rangers show that the wrens are very busy fellows and cooperate most effectively in holding down the white pine weevil.

- - - - - - -

EDUCATION AND EXTENSION

Mississippi Club Women Feature Forestry

By Lilian T. Conway, U. S. Forest Service

Although Mississippi can not yet boast of a State forestry department or of any constructive forestry legislation, the progressive women belonging to the Mississippi Federation of Women's Clubs are fully alive to the importance of forest conservation.

Mrs. G. H. Reeves, State chairman of forestry and wild life for the federation, has prepared, in cooperation with the Forest Service, a "forestry program" to be used by all clubs belonging to the federation. This is the program:

Roll Call -
"Trees of Mississippi"
Introductory Talk -
"Mississippi's Forest Wealth and What It Has Meant to our State"
Music
Talk -
"How We Can Secure Federal Aid in Our Greatest Forest Need, Protection Against Fire"
Reading -
"Service of the Trees," by W. R. Benet
Talk -
"What a State Forestry Organization Would Mean to Mississippi"
Music
Talk -
"What Mississippi Club Women Can Do Toward Restoring the State's Forests"
Discussion -
State and District Contests

If this program is used by all the federated clubs in the State, as is hoped and planned, forestry will be brought to the attention of more than 7,000 organized women.

The four brief "talks" contain facts and figures about the forests of Mississippi, their value to the State, the rate at which they are being cut, and the yearly damage from forest fires. The text of one of these talks is as follows:

Mississippi's Forest Wealth and What It Has Meant to Our State

It would almost be easier to tell of the prosperity that has come to Mississippi from all other resources than to picture adequately what her great wealth of pine, cypress, and hardwoods has contributed to the welfare, happiness, and health of her people.

Think first of the actual cash brought to the State each year by the forests. Mississippi ranks fourth among all the States in the Union in the amount of sawed lumber cut. In 1923, the last year for which census figures are available, this cut reached the enormous size of 2,700,000,000 board feet, and brought about $80,000,000. In addition, many million feet of timber cut and sold for railroad ties, piling, poles, pulpwood, fuel, and turpentine and rosin meant still further revenue. No figures are available of the actual value of these in cash, but it is safe to say that the forests of Mississippi are responsible for over $100,000,000 a year - a tidy sum, and one of which the richest State would hate to be deprived. It is not so far behind the total ($128,000,000) which cotton brought to the farmers of the State in 1924.

When figures run up into the billions they become hard to understand. Perhaps we shall have a better idea of the annual cut of sawed lumber in Mississippi when we realize that it is enough to build 270,000 bungalows, shelter sufficient for a city of more than 1,000,000 inhabitants, all living in good houses.

Such a large cut of lumber means much money paid into the treasury of the State in taxes. Nothing is so dear to the heart of a woman as the welfare of her children, and she desires ardently that they shall be prepared for the battle of life by a good education. Mississippi now boasts of a fine system of consolidated schools, and these schools were largely built from the income received from the forests. The same is true of our roads, our public buildings, and many other public improvements.

But as we all know, our natural wealth of forests is fast being used up. The cut of yellow pine alone now approaches 2 billion feet a year and is on the increase. The United States Forest Service estimates the annual growth of yellow pine saw-timber in the State at 500 million feet, or only about one-fourth the amount cut each year. This means that our taxable forest properties are on a downhill road.

If our forests go, the industries based on them must go too. Although this is an agricultural State, the forest industries are also important. Fully half the money derived from manufacturing industries comes from those dependent on the forests for their existence. The forest industries furnish employment to thousands of people - in the woods, at the mill, at the turpentine stills, and so on - and these people must

have homes, food, and clothing. Their wages are spent in the State, which benefits thereby. Their wants create a market for large quantities of farm produce, and so bring added prosperity to Mississippi's leading industry, agriculture.

Our farmers find their woodlands a valuable adjunct to farm crops. They cut, for their own use and to sell, $14,000,000 worth of timber in a year, and average $200 a year each, a welcome addition to a farmer's income.

Well over half of the State's area is forest land - that is to say, land more suitable for growing timber than for any other purpose. Of course, by no means all of this contains good timber, although much fine and valuable timber is left. Many great areas have been cut and burned over so often that they are not producing anything and are for all practical purposes as useless as a desert. Fully 4,000,000 acres of such land may be found within the borders of the State.

Besides producing material wealth, our forests have served many other purposes such as holding and building the soil, helping to regulate streamflow, furnishing homes for our birds and other wild life and wild flowers, and providing beautiful spots for the outdoor recreation so necessary to health. Their usefulness as soil-holders is evidenced by many a bare hillside, where trees once stood, washed into great gullies and not fit to produce growth of any kind. That they help to regulate streamflow is shown by the frequency of floods in regions where the forests at the heads of streams have been destroyed. No one questions that our song birds and little four-footed people of the woods as well as the wild flowers we so much admire need protection, and that often their very existence depends on the permanence of a forest home. And who would find pleasure in picnicking, camping, or motoring in a treeless waste?

Mississippi has been greatly blessed in the possession of magnificent forests. These forests, although still extensive, are rapidly decreasing. They are like a dwindling stream. They are necessary to our material prosperity, our health and happiness, our very lives in fact, and the State must take steps toward so managing them that they will increase rather than disappear. Such a goal can be attained, and the club women of Mississippi can do much to help attain it.

- - - - - - -

The forestry class of the Iowa State Agricultural College, Ames, Iowa, received summer instruction on the Minnesota National Forest this year. Professor J. A. Larson was in charge.

- - - - - - -

The Tree-Guide Family

Two new "sisters" in the popular Tree Guide family have recently appeared, namely, Arkansas and Pennsylvania. These bring the total present membership of the family up to 11. The older sisters are Delaware, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Kentucky, and Tennessee. About 90,000 of these tree booklets have been distributed.

Tree guides for Florida and Mississippi are expected any day from the printers, while the manuscript for a Connecticut guide has been submitted for bids. Thus, in the course of a few weeks, 14 States will have available the A-B-C of forestry - simple descriptions of the common forest trees, their chief value, and their uses. The Forest Service is now preparing a guide for Louisiana, and is cooperating with Ohio and Wisconsin in working up similar handbooks.

The largest guide thus far published is that for Pennsylvania, with descriptions of 80 native tree species, but the Florida manual will beat it with 93 native trees, of which some 35 occur in no other State. Only the more representative trees have been selected since Florida prides itself in having the most extensive tree flora of any State in the Union. Many of the oaks, hickories, elms, ashes, and basswoods that range widely over the eastern United States find their southern limit in western Florida. Of about 200 native tree species found in Florida, about 100 are subtropical or tropical, coming in from the islands of the Antilles and from Central or South America, and in this country occur exclusively in the Florida peninsula or adjacent keys. A few of these are the mangrove, red stopper, wild fig, blolly, inkwood, gum elastic, wild tamarind, and gumbo limbo.

The State foresters of Maryland, Virginia, North Carolina, and Tennessee were the original cooperators with W. R. Mattoon of the Forest Service, who originated the plan and has from the start taken the leadership in the cooperation, preparing the bulk of the tree descriptions. A very essential part of the tree manuals consists of the illustrations, which, with a few exceptions, are from original pen drawings by Mrs. A. E. Hoyle, also of the Forest Service.

The booklets for South Carolina, Georgia, Mississippi, and Arkansas are extension bulletins published by the extension services of the State colleges of agriculture. The District of Columbia booklet was issued by the American Forestry Association, while the Florida Forestry Association will be responsible for the forthcoming ten-thousand edition of that guide. The State department of agriculture published the Kentucky guide, and the department of education that for Delaware.

The Forest Service is in a position to offer its cooperation with other States or organizations in the preparation of similar tree manuals and in the loan of master cuts showing the foliage, flowers or fruit, and twig, from which electrotypes can be procured at a cost of about 90 cents each. It is suggested that some local person be chosen by the local cooperating agency as junior author to help in selecting the list of trees and in making such changes in the text as may be necessary to describe the local conditions within the State. This plan of cooperation has worked satisfactorily chiefly because of the very small amount of time and work necessary on the part of the cooperator in the preparation of the text and the relatively slight cost for illustrations. The cost for printing the tree guides has ranged mostly from 6 to 9 cents each in lots of 5 to 10 thousand copies. About one-half of the States have had their manuals printed and bound within their own borders; while 6 of the 11 booklets published thus far have come from the presses of a Baltimore, Md., firm, which has in each case been able to offer a considerable advantage in the way of cost.

- - - - - - -

Educational Stride in the South

By W. R. Mattoon, U. S. Forest Service

Surely the South is awakening from its long dream of turning all cut-over forest lands into farms, to a keen realization of the necessity of adopting a reforestation program.

The study of forestry has recently been made a part of the required curriculum in the public schools of Alabama and Tennessee. In Tennessee, the recent legislature embodied in its school law the requirement of teaching forestry, and the State textbook commission has selected "Our Trees and How They Serve Us" for this purpose. The book, which will soon be off the press, was written by State Forester Maddox and Dr. A. E. Parkins, professor of geography at Peabody College, Nashville. Its study will be required in the fifth grade, and it is expected that some 67,000 boys and girls will soon be absorbing the information. The authors start by pointing out our dependence upon wood, and follow with a description of some of the more important forest trees, their enemies, and their commercial uses, the community struggle of trees in the woods, reforestation, and the work of the State and Nation in forest conservation and tree planting for shade and ornament.

As a textbook for Alabama, the State bureau of education has adopted "Elements of Conservation," by Garrard Harris, the associate editor of the Birmingham News, who was for some years a special assistant in the Federal Department of Commerce. This book carries out well the plan of its author to interest and instruct young people in

the natural resources of the country. The soil and the need for its upbuilding are stressed at the opening. Forest conservation occupies a goodly portion of the book, along with helpful instruction as to relations of insects, birds, game animals, and fish. The country's water-power resources are treated, as well as health conservation, and lastly the unnecessary losses of life and property from forest fires and the methods of prevention.

The publishers of Harris's book state that it is being used in the schools of Virginia, Alabama, Mississippi, and Louisiana.

- - - - - - - -

A.F.A. to Ring the Fire Bell

The American Forestry Association has undertaken to raise a special fund for popular forest education, directed primarily against public forest-fire ignorance. It plans a 3-year campaign and will raise $50,000 annually for its operation.

A widespread use of localized educational films, lectures, and other forestry material in the public schools, boy and girl camps, rural communities, women's clubs, and civic and commercial organizations is contemplated. Features of the campaign will be the compilation of a popular pamphlet on forest protection for use by the schools, the boy and girl scouts, and game and outdoor organizations, and the preparation of special educational material needed in States which are inactive or only mildly active in forestry and of reading courses for clubs. An annual series of oratorical and essay contests will be arranged in the public schools, especially in the timber land sections of the United States.

John D. Rockefeller, Jr., has pledged $10,000 annually for the 3-year period on condition that the remainder of the $50,000 budget is raised. More than one-quarter of the budget has been subscribed for each of the three years.

- - - - - - - -

Tennessee Forester Teaches at Children's Camps

During July State Forester Maddox of Tennessee gave forestry lessons to the club boys and girls attending three camps conducted by the division of extension of the University of Tennessee. Something like 800 children from different parts of the State attended these camps, which were located at the university and at the experiment stations at Jackson and Columbia.

- - - - - - - -

Michigan Extension Agents Push Forestry

County Agent Leader E. G. Amos of the upper peninsula of Michigan recently expressed the opinion that forestry will in time become one of the major projects of the extension service in that State. "It will be part of our program," he said, "to sell the idea of reforestation just as much as it is now to preach better bulls and alfalfa. But when your 'dyed in the wool' extension man starts out to put over a program he must have a demonstration of how it is done and what might be expected.

"With this in mind, we, in the upper peninsula, conceived the idea of preparing for oncoming events by starting our demonstrations in forestry this year. We planted twelve 3-acre plots in eleven counties to white pine and Norway, close to trunk lines, under the direction of the Forestry Department of the Michigan State College. The plots selected are all located so that they can be added to from year to year with additional plantings and properly protected from fire, although fire did succeed in getting into one plot already. Thus, we will have ready, when the time is ripe, twelve first-class demonstrations to show the way.

"In addition to the plots we will have the data as to type of soil best suited to Norway and pine. We will know how many can be expected to live, what diseases to look for, and the rate of growth per year. All this taking place in each county where everyone can see for themselves. We will not have to depend on plots grown in some other section to use as an example."

The situation which calls for especial emphasis on pushing the forestry idea in Michigan is summed up by Mr. Amos as follows:

"1. Millions of acres of cut-over lands on our hands.
2. Agricultural development going backward in these sections.
3. Forest fires still raging, but situation getting somewhat better.
4. A start on legislation tending to encourage private and public reforestation.
5. Competent authorities showing a profit in timber growing."

- - - - - - -

Approximately 60 forest school undergraduates are being employed by the Forest Service in temporary positions in the North Pacific District this summer. The list of forest schools represented includes: Oregon Agricultural College, University of Washington, Washington State College, University of Minnesota, University of Michigan, Cornell, and New York State College of Forestry (Syracuse).

- - - - - - -

Plans of North Dakota Forestry School

The Bottineau School of Forestry, the reopening of which was authorized by the North Dakota legislature, will give a two-year course. Practical forestry, adapted to conditions in North Dakota, will be given special importance in the curriculum.

Francis Cobb, who is to act as president of the North Dakota school, announces that a State forest nursery will be established at Bottineau in cooperation with the U. S. Forest Service. Nursery stock produced there will be sold to farmers at cost. The institution will also employ an extension forester, who will devote his time to working with the farmers on forestry problems. Under the Clarke-McNary Act the institution will receive $1,500 for forestry extension and $2,000 to aid the State nursery.

- - - - - - -

California Forest School Receives Gift of Apparatus

An experimental seed extractor is being constructed at the greenhouse of the forestry division of the University of California, as a gift from the Lumber Producers' League of San Francisco. The division has for several years been conducting experiments with the seed of California forest trees to determine the best methods of collection, extraction, and storage and the requirements for germination of different species, and has so far been seriously handicapped by the lack of suitable apparatus for seed extraction. The new seed drier will be ready for use when the seeds of this year are ripe. This is especially opportune for the reason that several important forest trees of the Sierras are producing a heavy crop of seed this season for the first time in several years.

The machine is being built on a new design. It is of sheet metal construction throughout and has an electrically driven fan which forces heated air across the trays of cones at a rate of about 500 feet a minute. An automatic thermostat will control the temperature of the air within one degree and insure rapid and uniform drying of the cones at a temperature which will not injure the seed.

- - - - - - -

Last Year's Fire Score

Forest fires in the United States during the calendar year 1924 which were reported to the Forest Service numbered almost 92,000 and swept 29,000,000 acres of public and private land.

Compared with figures for the calendar year 1923 the 1924 figures represent an increase of 24,000 fires, and they exceed the 9-year average by 45,000 fires, or nearly 100 per cent. In acreage burned over the 1924 figures are only slightly larger than those for 1923, but are almost double the 9-year average.

Money damage in 1924, not including damage to young growth, watershed protection, wild life, and recreational facilities, and losses to the lumber industry, is estimated at $38,000,000. This is $10,000,000 above the 1923 estimate, and $18,000,000 higher than the 9-year average.

Unusually bad forest fire conditions prevailed last year, especially in many Southern States and in California. The material increase in the number of fires reported is partly attributable, however, to the fact that reports are more complete.

An analysis of the 1924 statistics shows that of the reported causes of fires incendiarism tops the list with 21,000 fires, or about 23 per cent of the total, brush burning comes next with 16,000, or 18 per cent, and smokers are third with 13,000. Only 6 per cent of the fires were known to have been started by lightning.

On the 157,000,000 acres included in the national forests the number of forest fires during 1924 totaled 8,247, the area swept by flames was 602,000 acres, and the money damage was estimated at $1,500,000.

- - - - - - - -

A Typical Burst of Lightning Fires in North Idaho

In the early hours of July 12 a thunderstorm without rain passed over northern Idaho. It set more than 50 fires on the Kaniksu National Forest, about 25 on the Pend Oreille, about 12 on the Kootenai in the northwest corner of Montana, and a few on other forests.

Paul Blickensderfer, lookout man at South Baldy Mountain, was killed by a bolt which struck the cabin where he and three other forest employees were sleeping. One of the others was stunned by the same bolt. Recovering consciousness after about an hour, he staggered to his feet, grabbed his tools and pack of emergency rations, and by nightfall had trenched four of the fires which could be seen from the cabin.

The protective organization on the Kaniksu worked smoothly and soon had more than 40 of the fires under control. Seven or eight could not be reached until they had attained such a size that crews were required. Extra men, equipment, and rations were sent from the Spokane warehouse; men from the district office and even the experiment station men were drafted; strings of pack horses and miles of emergency telephone wire were promptly brought to the scene; and the usual fight was on. The fifteenth and sixteenth of July were days of unusually low humidity, and during the afternoons of those days some of the fires jumped into the crowns. Two laborers caught in a sheet of flame were burned to death, and two others went to the hospital badly burned.

In the face of all sorts of difficulties, steady and persistent fire-line digging finally conquered all these fires. One was stopped on the edge of a timber-sale area where the brush had been piled. One dry afternoon a fire which had nearly been surrounded made a run in the form of a narrow strip half a mile long on a steep hillside, crowning in the dead trees and snags of an eight-year-old burn. The line around it was completed before the next afternoon and held.

The loss of life was abnormal. Otherwise this burst of lightning fires was not unusual for northern Idaho. The Forest Service men of that region get plenty of fire-fighting experience. A lumber company on the edge of the Kaniksu, when its 250 men had struggled in vain to put out a fire on its own holdings, asked the Forest Service to send a trained man to take charge.

- - - - - - - - -

Timber Sales on the National Forests

The timber cut on the national forests during the fiscal year 1925 totaled 1,037,492,000 board feet and the receipts for timber $2,918,681.80. Sixteen forests rolled up timber receipts of more than $50,000 each. In nine of these forests receipts exceeded the $100,000 mark and in one, the Stanislaus, they totaled $264,610. A summary of the 1925 sales business in the different districts and in the 16 forests where receipts were largest is given in the following tables:

Amount and contract value of timber cut under commercial and cost sales, and receipts from timber sales and timber settlement, during fiscal year ending June 30, 1925; forest districts.

District	Amount cut M feet B. M.	Contract Value	Receipts from timber sales and settlement
1	125,205	$470,564	$511,847.79
2	147,985	423,363	424,474.33
3	70,871	144,647	138,109.28
4	64,837	127,063	146,669.10
5	207,010	619,946	637,354.88
6	322,195	731,862	755,443.48
7	43,947	198,741	198,444.39
8	55,442	97,352	106,341.55
	1,037,492	2,813,538	2,918,684.80

Forests with timber receipts in excess of $50,000, fiscal year 1925.

District	Forest	Receipts from timber sales & timber settlement	Timber cut under sales M feet	Contract value of timber cut
5	Stanislaus	$ 264,610.41	80,531	$ 244,177.15
1	Kaniksu	180,444.33	36,094	196,981.14
6	Crater	177,556.80	47,830	181,556.57
1	Coeur d'Alene	161,359.34	16,894	107,209.93
6	Whitman	141,861.16	48,125	145,204.75
5	Lassen	130,787.14	38,682	138,652.98
5	Plumas	128,282.92	45,356	127,230.63
2	Medicine Bow	104,205.55	42,501	124,562.91
8	Tongass	101,004.84	52,277	91,948.48
6	Snoqualmie	92,007.81	38,358	73,940.74
2	Harney	88,857.47	21,150	85,401.74
7	Arkansas	77,389.59	11,259	73,038.67
6	Olympic	69,097.75	43,861	61,935.46
6	Deschutes	61,310.72	12,908	41,265.37
3	Coconino	56,876.24	31,436	68,519.75
6	Cascade	54,554.31	48,247	68,744.97
Total		$1,890,206.38	615,509	$1,830,371.24

Game on the National Forests

More than 687,000 head of big game make their homes on the national forests, according to the game census of 1924. The fact that bear, formerly listed as predatory animals, were included in this census for the first time, accounts for 44,326 added to the total. The further increase of 44,000 over the 1923 estimate may be due to the fact that extreme drought conditions in the West in 1924 resulted in an unusual concentration of game animals around watering places, which enabled the forest officers to make closer estimates than in former years.

Deer, which represent the vast bulk of the big game population of the national forests, are on the increase except in a few forests in California. Elk showed an increase in all western forests. Only a few more than 5,000 antelope were counted, a fact which justifies the effort being made to establish a game refuge for the large herd grazing on public lands outside the national forest areas in northwestern Nevada and southeastern Oregon.

- - - - - - - - -

From Khaki to Forest Green

The names of many of the national forests recently created under the Clarke-McNary Act will recall the days when our dearest hate was for the bugle instead of the alarm clock. Dix, Upton, Tobyhanna, Meade, McClellan call up far other pictures than cool, shady forests and picnics under the trees.

There are now 18 military reservations that have been given national forest status. In five cases the reservations have been merged with national forests previously in existence. Four of the States in which the new forests are located--New York, New Jersey, Illinois, and Kentucky--previously contained no national forests.

In size the 18 different tracts range from the 2,680 acres of the Ft. Brady Target Range, Michigan, to the 82,820 acres of the Ft. D. A. Russell Target and Maneuver Reservation, Wyoming. Their combined area amounts to 354,509 acres, and brings the total acreage of the national forests to 158,413,084.

The 18 reservations, their locations and areas, and the names given to them as national forests, are as follows:

Reservation	National Forest	State	Area
Ft. Wingate Mil. Res.	Manzano * (Zuni District)	New Mexico	50,560 acres
Ft. Benning Mil. Res.	Benning	Georgia	78,560 "
Camp McClellan Mil. Res.	McClellan	Alabama	15,350 "
Camp Jackson Mil. Res.	Jackson	South Carolina	20,225 "
Camp Knox Mil. Res.	Knox	Kentucky	22,660 "
Savanna Proving Grounds Mil. Res.	Savanna	Illinois	10,710 "
Camp Dix Mil. Res.	Dix	New Jersey	6,785 "
Ft. Eustis Mil. Res.	Eustis	Virginia	4,220 "
Ft. Humphreys Mil. Res.	Humphreys	Virginia	3,184 "
Camp Lee Mil. Res.	Lee	Virginia	7,177 "
Camp Meade Mil. Res.	Meade	Maryland	4,725 "
Pine Plains Mil. Res.	Pine Plains	New York	9,800 "
Tobyhanna Mil. Res.	Tobyhanna	Pennsylvania	20,870 "
Camp Upton Mil. Res.	Upton	New York	6,154 "
Ft. Huachuca Mil. Res.	Coronado * (Huachuca Dist.)	Arizona	32,635 "
Ft. D. A. Russell Target and Maneuver Res.	Medicine Bow * (Pole Mt. Dist.)	Wyoming	52,820 "
Ft. Brady Target Range	Michigan * (Brady Dist.)	Michigan	2,680 "
Ft. Meade Wood Res.	Black Hills * (Meade Dist.)	South Dakota	5,394 "
			354,509 "

*Additions to forests previously created

Characteristics Influencing Fire Resistance of Northern Rocky Mountain Conifers

Extracts from an article by H. R. Flint, District Forest Inspector, U. S. Forest Service

Some intensive studies in Douglas fir fire problems on the Pacific Coast conducted by Dr. J. V. Hofmann, formerly of the Northern Rocky Mountain Experiment Station, clearly indicate the importance of bark thickness in protecting trees from the effects of surface fires. The experiments show that "Douglas fir with bark 4 inches thick resisted, without injury to the growing tissue inside, a heat of 900 degrees F. applied for 4 hours; and that slash fires heated the trunks from 880 to 1400 degrees F. for periods of 5 to 20 minutes without harm. Trees 35 years old with bark 1-1/2 inches thick were killed after 52 minutes and 15-year-old trees with bark 1/4 inch thick were killed after 11 minutes in a heat of 900 degrees F. Young trees 8 years old with bark 0.15-inch thick were killed in 1 minute and 10 seconds."

Heinrich Mayr, a German investigator, reports that growing tissue (cambium) in trees is killed when heated to 54 degrees C. (about 129 degrees F.). Thus it appears that thickness of bark alone gives such trees as western larch, Douglas fir, and western yellow pine a great advantage over many others.

Many of our fires are surface fires or ground fires. In fires of this kind the tree with a deep or descending root system has a great advantage over one with a horizontal or surface root system. Here again the western larch, western yellow pine, and Douglas fir, with their roots striking deeply into the mineral soil, have a distinct advantage over trees like the western red cedar and western hemlock with their roots spread horizontally just beneath a duff layer which frequently burns off with a considerable heat, leaving the shallow roots scorched and exposed in the top of a baked mineral soil.

The resin or pitch of coniferous trees is properly recognized as an inflammable material. Its presence in the outer bark of a tree greatly increases the susceptibility of the tree to damage by fire. The thick, corky bark at the base of old western larch, white fir, and Douglas fir trees bears but little resin and represents one extreme in this respect. At the other end of the scale are lodgepole pine and alpine fir, both with bark that even on the lower trunk may long retain its resin content.

There appears to be at least a casual relationship between what is known to foresters as "tolerance," or some of the characteristics that go to make up tolerance, and fire resistance. Generally speaking, the intolerant trees of this region are highly fire-resistant and the

tolerant ones are of low resistance. The branching habit of intolerant species like western larch, western yellow pine, and lodgepole pine is open and the trees usually prune fairly well; therefore, there is but little fuel on the lower part of the trunk to overheat it or to carry fire aloft.

Inflammability of foliage is an important factor concerning which there has been a great deal of discussion and apparently very little intensive investigation. Some preliminary studies at the Northern Rocky Mountain Experiment Station indicate that the moisture content of living coniferous leaves is very high, probably 100 to 300 per cent of the weight of the oven-dry material. Young leaves have been found to have a substantially higher moisture content than older ones, but it seems not to have been demonstrated that coniferous leaves contain substantially less moisture in midseason during a dry than during a moist period.

A heavy growth of lichens, commonly called "moss" by woodsmen, is one of the features of the forests on the west slope of the Continental Divide in this region. The two really important lichens are known as "black moss" or "squaw hair moss" and "green moss" or "gray moss." Botanically, the black one is "Alectoria fremontii" and the gray-green one is "Alectoria sarmentosa." Neither species becomes abundant enough or large enough to be important from a fire standpoint in stands less than 50 years old. A peculiarity of both is that they are very highly inflammable. During dry weather they may be lighted instantly with a match, whereupon they flame up quickly and burn with sufficient heat to ignite dead twigs and resinous green foliage. The lichens themselves appear to bear a resinous or oily principle which causes them to burn freely even in damp weather.

- - - - - - - -

Great Lookout Tower Raised by Cooperators

A group of enthusiastic Forest Service cooperators have just completed the highest lookout tower in District 5. It stands on Grass Valley Ridge north of Strawberry Flat, a summer home settlement and public camp ground on the San Bernardino Forest. The tower was built of lumber, on a plan resembling that of the typical oil derrick. It is 80 feet high, is anchored to railroad iron that is set in concrete 10 feet underground, and is undoubtedly the largest structure of its kind on the national forests. The ladders leading to the lookout house (on top of the tower) are on the inside of the structure, and there is a platform every 15 feet. Living quarters for the lookout and his family have been fitted up in the base.

Less than $100 of the total cost of this tower was paid by the Forest Service. Local sawmill men sawed out the lumber and helped with

construction work, other cooperators furnished cable for guy wires, and a number of permittees took part in the construction--which was finished in record time. The tower fills a long-felt want. It covers practically all of the west end of the San Bernardino Forest except the brush slopes between the forest boundary and the Rim of the World Drive.

- - - - - - - -

"Static" and Fire Weather

That "static," the curse of all good radio fans, may prove to be a friend of the firefighter is indicated by studies now under way at the Wind River Branch of the Pacific Northwest Experiment Station. The investigators hope to find in static a means of forecasting changes in relative humidity, which is a prime factor in the behavior of forest fires and which is always rising or falling.

In addition to the equipment found in the home of the average radio fan, special circuits and meters are being employed in the study and a large loop antenna has been installed for use in ascertaining the direction from which the static is coming. Also a recording meter of unique design has recently been installed which permits the static to write its own history, hour by hour and day by day.

By the use of the loop aerial, rain areas have been located and the movement of thunderstorms followed. Each type of weather--rain, sunshine, fog, thunderstorm, or what not--"has a static all its own."

Some idea of the enormous electrical pressures built up at the beginning of even a very ordinary thunderstorm may be had from the fact that currents on the receiving aerial with potentials as high as half a million volts have been measured.

It is by analyses of all the different kinds of static and the records of their varying intensities and a correlation with graphic records of relative humidity and other meteorological factors that the investigators hope to arrive at an explanation of the relation that exists between static and humidity.

- - - - - - - - -

GENERAL FOREST NEWS

Do Coming Events Cast Their Shadows Before?

"A timber shortage? They've been saying that for a long time but it never happened."

The reason for this attitude has probably been that the predictions have come from foresters. People took them as they do the doctor's pronouncement that the patient is very sick, but he'll pull him through.

When the news gets into lumber journals, however, that distant producers, domestic and foreign, from opposite ends of the world, are planning to compete in our greatest consuming center it is time at least to study what this points toward, what the event will be that is recorded in the same journals ten years from now.

In one issue of a lumber journal that comes regularly to the Editor's desk are four significant items. Under the headline "Finns Try for American Market" is the announcement of a seriously considered plan to sell Finnish pine and spruce in the United States in order to market surplus production that is moving slowly because of stagnant European markets. In the same issue Austin Cary, just returned from southwestern France, makes the statement "Recently rosins from this region have been sold in the United States, beating our prices despite the fact that their gum is recovered by processes more expensive than ours."

Under the heading "Albany Dealer Expects Coast Delivery" is the news of a shipment of 1,250,000 feet of Douglas fir through the Panama Canal to New York and thence by lighters up the Hudson to Albany, N.Y. And along with this the advertisement of a Pacific Coast lumber company announcing the establishment of a Brooklyn yard, carrying average stocks of 12,000,000 feet of lumber from the Pacific Northwest.

As long as the Pacific Northwest can supply the need, perhaps there is no reason for worry, but how long will it be before the magnificent stands there are spoken of in that regretful tone we use when referring to the spruce of the East and the white pine of the Lake States? Shipments of fir from British Columbia and of spruce from northern Europe have already reached the Atlantic States. Will the lumber journals of 1935 speak of shipments from Siberia as matters of course?

- - - - - - - - -

First Demands for Range Control

By Will C. Barnes, U.S. Forest Service

It is interesting to learn that the idea of range control is not altogether a modern innovation, as most students of this subject undoubtedly believe. In March, 1775, Daniel Boone, the mighty hunter and pioneer who had been employed by Governor Dunmore of Virginia to conduct a crew of surveyors to the falls of the Ohio River, began the erection of a fort in what is now Madison County, Kentucky, in the central portion of that State. (Collins' History of Kentucky) To this fort Boone brought his wife and daughters and his brother, Squire Boone. Colonel Henderson, a Virginian, had purchased from the Cherokee Indians some 90,000,000 acres of wild or public land upon which he intended to organize what he called the "Coloney of Transylvania." Henderson, who was the first and only president of this long-since forgotten republic, established his capital at Boone's fort, or Boonesboro as it was later called. Naturally the new colony required laws for its government. Henderson called a convention at Boonesboro, and on May 23, 1775, six men met and drew up and passed nine separate laws as a basis for a code of laws for the new colony. Of these nine three are of particular interest to the livestock industry. They are entitled:

"An act to preserve the range - that is the right of public pasture."

"An act for preserving the breed of horses."

"An act for preserving game."

A close search through every available source of information fails to discover more than the titles to these nine laws. Their wording has been lost to posterity. Shaler's History of Kentucky, page 69, says: "The foregoing laws have not come down to us in detail. We have only their titles." It certainly would be interesting to know the exact phraseology of the law for preserving the range. Considering, however, the various statements made by early writers as to the damage done to the forests and ranges by the livestock of the Virginia settlers as well as their almost uniform comments on the wretched physical condition of the animals themselves, it is but reasonable to assume that this law was intended to restrict in some degree the wasteful use of the range by livestock. If this assumption be true, then this is the first known attempt to regulate by law the use of the public domain for grazing livestock.

Boone was a member of this convention and as he had been a cattle owner in the Virginia colony it is not unlikely that he was responsible for the measure. After the passage of these nine measures the convention adjourned to meet again in September, 1775, but never reassembled, the Colony of Virginia having stepped in and protested Henderson's action in acquiring the land. Thus ended the "Coloney of Transylvania" and early attempts at some form of legal supervision of the public domain.

- - - - - - - -

Town Forests

By L. C. Everard, U. S. Forest Service

Is the time coming when the favorite recreation ground of the village will be the town forest instead of the town pump? Recent developments, particularly in New England, indicate that it may be so--- and a mighty good change it will be. In Massachusetts town forests are already becoming fashionable-- at the beginning of 1925, land for town forests had been set aside by 42 out of 355 cities and towns under the Town Forest Act, and this spring 23 more communities got into line. About one in five of the municipalities of the State have their own forests. In 110 others special committees have been appointed to make investigations with a view to joining in the movement. The 65 cities and towns have appropriated $45,086 for the purchase of land and for reforestation. They have acquired 5,834 acres of land and planted more than 657,000 trees. The offer of the Massachusetts Forestry Association to plant 5,000 trees free of charge for any town that will set aside 100 acres or more as a town forest has been accepted by 21 different towns. The offer will be continued for another year.

Not only would a town forest for every community be a paying investment in recreation facilities, in water-supply protection, and in other indirect ways, but it could easily come to mean actual money returns to the community--cash in hand for municipal purposes--as well as supplying wood for the use of the town and employment for a certain number of people in getting out the timber. In many European countries the town forest is as much a part of the municipal business as water supply, drainage, or city parks, and receives just as careful attention. The town forest of Zurich, Switzerland, is reported to return to the municipal treasury annually a net income of $20,000. New Bedford, Mass., and Keene, N. H., report returns of $15,000 each in one year from their municipal forests. Hartford, Conn., and Newark, N. J., report returns of $7,000 and $3,000 respectively. There is no question that with proper management the town forest is an attractive investment, and those communities that want to be abreast of the times will do well to give careful consideration to the advantages, both civic and financial, that are to be derived from such forests.

In the United States something like 250 cities, towns, and counties have already established community forests, with an aggregate area of more than 500,000 acres. About 40,000 acres have been planted and about 40,000,000 trees used for this purpose. New York, Massachusetts, Pennsylvania, and other States have encouraged such planting by giving away for this purpose small trees grown in state-owned nurseries.

Of the municipalities New York City has taken the lead in planting with a total of 5,000,000 trees planted on 15,000 acres. Albany has set aside 610 acres of land this year and 60,000 trees have been supplied by the New York State Forestry Association for planting on this area, the

work being successfully completed on May 6, 1925. A survey of the old growth on this town forest revealed salable products worth at least $40,000.

The big proportion of the community forests today lie in Pennsylvania, New York, Connecticut, Massachusetts, New Hampshire, and Vermont, but such forests have been established in at least 26 States.

- - - - - - -

Is Anyone Interested in a Tree-planting Machine?

The Forest Service has recently been in communication with T. A. Hoverstad, Development Agent of the Chicago Great Western Railroad Company, Chicago, Ill. Mr. Hoverstad directed forest planting along the Soo Railroad in North Dakota in 1915, 1916, and 1917, and at that time he developed and used a tree planter. The following is quoted from his letter:

> "It is my opinion that on all lands that can be plowed it is practical to use a tree-planting machine. Our first experience with the tree planter was in 1916. We planted quite a number of trees for live snow fences on the Soo Railroad. The previous year we planted trees by hand.
>
> "A tree-planting machine is an inexpensive affair. I should be glad to help design such a tree planter without cost to you. It could be used cooperatively. One machine could be had in each county or each township, depending on how much tree planting would be done, and the planting could be done under the direction of the county agent. If this were done a very large number of trees would be planted by people who as a rule to not like to spend very much time setting out trees by hand."

In the type of ground covered by ordinary forest planting operations, it would doubtless be out of the question to use a tree-planting machine of the type Mr. Hoverstad used, which apparently resembled some machines in use today for planting agricultural crops. These machines are equipped with a plow which opens up a furrow, and one or more men sit on the machine and stick the plants in the furrow as it is opened. Two wheels set on angles pull the soil in around the roots of the plants. If anyone is interested in learning more about the particular implement which Mr. Hoverstad designed, the Forest Service will take this matter up further with him.

- - - - - - -

Standard Classification of Tree Planters Suggested

The offer of Federal assistance to the States in the distribution of tree planting stock, under Section 4 of the Clarke-McNary Law, prompts the suggestion that a standard classification of tree planters be adopted. Each State has drawn up classified lists of its tree planters, but no two States have classifications that permit comparison. It appears that a standard classification would be a convenience both to the Forest Service and to the cooperating States.

The various class names in use at the present time include State forests, municipalities, mining companies, water companies, reforested lands, State institutions, town forests, boy scouts, school districts, industrials, schools and colleges, churches, homes and private hospitals, associations and clubs, State departments, private land owners, and miscellaneous. It is interesting to know what each of these classes is doing in tree planting, but it seems unnecessary for the nursery records to show figures for all of them. These records should show how many trees are planted by the State, but each State department should keep a record of the trees it sets out. Likewise, the nursery record should show the number of trees planted by industrial concerns, but the numbers planted by branches of industry, such as mining companies, paper and pulp companies, and lumbermen need not be a nursery record unless they are unusually large.

The following classes of tree planters are suggested as of sufficient importance to warrant a separate nursery classification. They also appear to cover the field of tree planters:

State. This should include all State departments, State institutions, and other subdivisions of the State government.

Municipalities. This should include municipal water companies, municipal park commissions, municipal hospitals, and other divisions of municipal governments.

Industrial. This should include all industrial organizations, such as mining companies, paper mills, railroad companies, and lumber companies.

Organizations, associations, and clubs. This should include game, fish, and forest associations; boy scouts; civic, Kiwanis, Rotary, and country clubs; churches; etc.

Schools and colleges. This should include all public schools, private schools, colleges, and universities.

Individuals. This should include all planters that cannot be included in the above classes, such as farmers and timberland owners.

Do the Federal Forest Service and the States operating forest tree nurseries feel the need of a standard classification of tree planters? Pennsylvania would like to have it, in the hope that new ideas for the encouragement of tree planting would be developed.

John W. Keller, Chief,
Bureau of Forest Extension,
Penn'a Department of Forests and Waters

(The Federal Forest Service is in entire agreement with Mr. Keller that there is need of a standard classification of tree planters. Some such classification is, it seems, essential for the records of the States themselves and for comparative statistical purposes. It seems desirable that the classifications used by the different States be very similar. Comment is invited upon the classification proposed by Mr. Keller to the end that some standard classification be evolved for consideration by the States which engage in forest tree planting and the distribution of nursery stock.--Ed.)

- - - - - - -

Who Established the Fire Lookout Station?

So far as is known, Maine was the first State to establish forest fire observation stations. In his report for 1906, Forest Commissioner Edgar E. Ring, of Maine, made the statement that several "lookout stations" had been established in 1905. Three observatories were constructed in that year, at Squaw Mountain, Attean Mountain, and Mt. Bigelow. Each station was connected by telephone with the house of the Chief Firewarden of the district, who was immediately communicated with in case smoke or other indication of fire was noted by the observer.

Previous to that, however, one lookout station was established in 1903 by the timberland owners in northern Maine. It was merely a temporary platform or crib constructed of wood. On the discovery of a fire the observer had to travel, often for hours, to notify someone so that men could be gathered to fight the fire.

It appears that although Maine was the first State to make an effort along this line, private observation towers were constructed as far back as the eighties. A memorandum from Mr. George Wirt, Chief Forest Fire Warden of Pennsylvania, is interesting in this respect:

> "Back in the 1880's while Albert Lewis was conducting his lumbering operations in the neighborhood of Bear Creek, Luzerne County, he established a lookout station on one of the highest houses near his lumber town of Bear Creek. During the fire season one of his men was stationed on the top of this house with a horn or megaphone and whenever he observed smoke any-

where in the neighborhood of the operations he notified the people of the village and they in turn the lumber crews and a prompt attack was made upon the fire.

"Several different places in Germany, as a forestry student, I observed in 1900 the outlook stations which were manned only on particularly bad fire days. On our return to Biltmore that year the value of a lookout station connected with headquarters by telephone was brought forcefully to the attention of the Biltmore students. On Mt. Pisgah there was a ranger station with telephone line into Biltmore. This ranger station reported fire, and it was possible for the whole outfit to start toward Mt. Pisgah in short order. In the summer of 1904 at the St. Louis Exposition there was on exhibition a model fire tower provided with a system of signals to indicate the direction the fire was located with respect to the tower. At that time I was in charge of the Mont Alto Forest and had already used a bare knob, a pine tree, and the old observation station built for park purposes as outlook stations for the Mont Alto Forest. I took home with me from St. Louis a plan of the tower shown there but it was not until September of 1905 that a similar tower was erected on Pine Mountain just above the forest school.

"I have every reason to believe that Maine was the first State which actually built the system of towers and tied them up by telephones. I have an idea that the commissioner of Maine got his idea from the St. Louis Exposition."

As a matter of historical interest, it would be very much appreciated if anyone reading the Forest Worker would report to the Federal Forest Service any forest fire observation stations which were in existence prior to the one described by Mr. Wirt as being established in the eighties.

- - - - - - -

Unique Reforestation Project in Vermont

The first number of the "Green Mountain State Forest News" of the Vermont Forest Service tells of an unusual experiment in reforestation in Vermont.

In 1922 Guy Wilson of Bethel, Vermont, purchased 120 acres of forest land known as the "Parker Lot." The cost was $350.00. Mr. Wilson deeded this land to three trustees to be held in trust and dedicated to the purpose of timber growing by boys. Any boy interested in reforestation may plant an acre or more of the land upon registration with the trustees. The boy pays for the trees at the rate of $6.50 a thousand, and after they are planted he is given a certificate to that effect. At

the time of maturity it is his right to cut them. He then pays to the trustees 1 per cent of the expense incurred by them, including the original price of the land, the yearly rental, and the cost of protection, figured at 5 per cent interest.

Initial investment of the boys per acre, plus the cost of setting trees and the payment to the trustees, will amount at the end of 50 years to about $40.00. It is estimated that the plantation should then be worth approximately $300 per acre. Fifteen boys have availed themselves of the plan and have planted 30,000 trees.

- - - - - - - -

Saving Two Million Acres of Timber a Year

Fifteen years ago the railroads used about 21,000,000 treated ties, and half of all the other timber treated, the total amounting to around 90 per cent of all the timber preserved that year. Today over 60,000,000 treated ties are used annually by the railroads, which consume about 80 per cent of the total amount of timber treated in this country.

A tie given proper preservative treatment lasts at least three times as long as an untreated tie, and is usually replaced because of mechanical wear rather than decay. For every tie treated, therefore, two ties are conserved for the future, or an equal amount of timber is saved for other purposes. On this basis the railroads saved 125,000,000 ties last year. As the average forest yield is about 60 ties per acre, they saved the cut on 2,100,000 acres. On the same basis, during the last 15 years the railroads have saved more timber than is cut in one year, by the use of preserved ties only--not including the millions of feet of treated timber used for car construction, bridges, wharves, posts, poles, etc.

--Wood Preserving News

(The estimate of 60 ties per acre sounds low to the Forest Service, which cuts from 100 to 200 per acre in its sales of lodgepole pine.--Ed.)

- - - - - - -

Fire in French Forests

Défense des forêts contre l'incendie. Rapport fait au nom de la Commission technique temporaire des Incendies de forêts, par M. (Paul) Antoni, Inspecteur Général des Eaux et Forêts. 110 p. Berger-Levrault, Paris, 1923.

By W. N. Sparhawk, U. S. Forest Service

To those American foresters who are accustomed to think of European forests as being so intensively managed that the fire problem is negligible, the report of a special French commission headed by M. Antoni may be an eye-opener.

Like the United States, France does not collect complete statistics of forest fires, and even for the forests under State control (comprising about one-third of the forest area) less than 20 years' records are available. Fairly complete records for the whole country were collected in 1921, which was unusually dry. In that year 3,566 fires were reported, burning over more than 123,000 acres and causing damage of 14,000,000 francs. (France's forest area is about one-twentieth as large as ours.) The causes were reported to be:

Carelessness, smokers, campers, woodworkers, etc.	1,195	= 33.5%
Incendiary	190	= 5.3%
Railroads	559	= 15.6%
Artillery practice	52	= 1.4%
Explosion of projectiles	62	= 1.7%
Lightning	4	= Negligible
Burning buildings & automobiles	1,499	= 41.9%

The report recommends various preventive measures, including the amendment of the Forest Code so as to allow local officials to forbid smoking in the forests during danger periods, to restrict private owners in their use of fire, and, if necessary, to delay the opening of the hunting season. This can already be done in the State forests, but not in the private, except in a few special districts. It is stated that the railroads already go considerably farther than the law compels in regard to use of spark arrestors, ash-pan guards, and clearing along right-of-ways. This is attributed to the fact that they have to pay

damages for fires starting along their lines. The number of railroad fires is said to have increased greatly with the introduction of American locomotives. Further studies of spark arrestors, and legal permission for the railways to clean up inflammable debris on abutting private lands, are recommended.

The discussion in this report of methods of anti-fire propaganda and education of the public is most interesting, covering fire warning posters, painted sign-boards, post-cards, motion pictures, instruction in the elementary schools, and cooperation with the newspapers and the periodicals catering to special classes such as sportsmen, alpine clubs, touring clubs, Boy Scouts, etc. It is suggested that fire-warnings should avoid the "verboten" tone, but rather invite the reader to use good sense and be careful. The recommendation is emphatic that the daily papers be urged to abstain from lurid accounts of fires and their authors, because of the danger of tempting notoriety and sensation seekers to set fires. Perhaps some of our own organizations who take pride in "getting across" scores of columns of fire publicity should consider this angle.

Various protective measures are outlined, including lookout towers, patrol, telephone and telegraph, organization of fire-fighting crews in advance of the season, tool caches and supply depots (the State forests already have them, but private and communal forests do not), special vehicles for carrying men and equipment to fires, airplane patrol, and the use of troops. It is stated that troops have not been used as frequently as they should in fighting fires on communal or private lands because the costs had to be met by the communes or private owners, who can insure their forests anyway. The commission considers that the public interest justifies the State in taking over this cost. [The Chamber of Deputies has since made a special appropriation for this purpose.]

Considerable space is given to a discussion of reducing the fire hazard by various means, especially in connection with forest management. "The first step is to create roads and compartment lines in forests which have none or too few." Some of the larger fires of 1921 are attributed to the fact that thousands of acres of unregulated private forests have no roads. ["Outlook" please note.] Fire breaks, also, are necessary in conifer forests or where there is a dense, inflammable brush cover. The construction of fire-lines is discussed at length in the report, and in an appended report by M. Lombard. It is interesting to note that cleared fire-breaks are no longer favored, but that as a general thing it is deemed preferable to leave them timbered, merely clearing off the litter and undergrowth and pruning the lower branches from the trees. Not only are such "breaks" more effective in checking fires, but the land remains productive.

Methods and technique of fighting fires under various conditions are treated in detail. Apparently some French fire fighters are not

very different from some in America, for in emphasizing the necessity of completely extinguishing a fire as soon as it is stopped the report says: "Generally, when the advance of the fire is stopped, it is considered out, and everybody goes back to his work . . . A fire stopped is not a fire extinguished."

One of the concluding paragraphs is as follows:

"After all these recommendations have been adopted, there will still be forest fires, just as there still are fires in cities in spite of the continually increasing precautions and greater efficiency of the fire-fighting apparatus. Exceptional droughts and tempestuous winds will always have to be contended with in certain regions. But the frequency and the severity of the fires will generally be much reduced."

- - - - - - -

Tree Planting on Canadian Prairies

Farmers in the Prairie Provinces of Canada have planted trees furnished by the Dominion Government every spring since 1900. In that time the forestry branch of the Department of the Interior has distributed to farmers from its two nurseries in Saskatchewan more than 81,000,000 seedlings and cuttings of broadleaf trees and nearly 1,500,000 young spruce and pine transplants. Plantings have been mainly for the purpose of shelter-belts about farm buildings and gardens, but a growing demand is noted for windbreaks to protect crops and control soil-drifting, and for school-ground planting. This spring's distribution of almost 5,000,000 went to 6,090 farmers, and to 202 schools in Saskatchewan alone.

In the early days of western settlement it was generally believed that trees could not be made to grow on the prairie, but careful planting reports received annually indicate that of this 25-year distribution fully 80 per cent are thriving.

- - - - - - -

A State Forest School for Australia

The Government of the Commonwealth of Australia has decided to establish a school of forestry in the territory of the Federal Capital. The Federal Government will bear the cost of buildings, maintenance, and the salaries of the teaching staff, leaving subsistence only to be borne by students or by the State Governments nominating students. An expert adviser has been commissioned to investigate the forestry situation.

- - - - - - -

County Forests in Ontario

By Joseph Kittredge, Jr., Lake States Experiment Station

Southern Ontario, like the States to the south and west of it, has large areas of waste land, most of it sandy, which has been cleared, farmed, and after a period of years abandoned. In certain counties the process has gone so far that considerable areas of waste and abandoned lands occur in reasonably solid blocks. Sand blows occur frequently and not only cover grassland but cause much trouble by covering the roads. The practicability of planting these areas to red or jack pine has been thoroughly demonstrated by the provincial forest service. As in the United States, however, reforestation is an enormous task.

In order to assist in accomplishing this task and to stimulate the interest of local communities, a plan has been worked out and incorporated in legislation to provide for the establishment of county forests. The essential features of the plan are as follows:

The county purchases with its own funds not less than 1,000 acres of land, to which it retains the title. The provincial government then assumes the responsibility for establishing a forest on the area and maintaining it for a period of 30 years. This includes providing the trees and all the labor and supervision connected with planting them. At the end of the 30-year period the county has three options:

1) To share equally with the Province in the costs and earnings of the forest.

2) To take over the forest and return to the Province, without interest, all money expended on the establishment and maintenance of the forest.

3) To turn the land over to the Province upon payment of the purchase price of the land without interest.

Already three counties have taken advantage of this plan, and others are expected to follow the lead. The advantages of some such plan in this country where the need is recognized of enlisting the active cooperation of all possible agencies in reforestation of waste lands is evident.

- - - - - - - -

Corsican Pine in Southern France

Corsican pines introduced into the forests of the Cevennes Mountains in France about 1865 are reported to have reached a height of 20 meters and a circumference of 1.8 meters, far surpassing Scotch pines on similar sites. Areas that were denuded have been restored to true forest conditions by reforestation with this species--the forest soil cover has been renewed, small gullies filled and others checked, and rock outcrops covered. The areas reforested are at altitudes of 450 to 1,000 meters, and within these altitudes in the departments of Gard and Lozere the Corsican pine is reported as "accommodating itself to all kinds of sites without demanding, like the Scotch pine, a certain freshness of the subsoil."

- - - - - - -

Reforestation in the Italian War Zone

It is reported that reforestation of the areas in Venetia devastated during the war, which has been going on for about two years, is costing approximately 1,370 to 2,335 lira per hectare. Austrian pine (called black pine in Italy and France since the war) is the favored species for such reforestation operations. The plan is to leave the most inhospitable sites to fill up naturally as time goes on, while spreading the planting over the rest of the forest.

- - - - - - -

The World's Oldest Lumber Firm

Probably the oldest lumber company in the world is the Stora Kopparsbergs Bergslags, A. B., of Stockholm, Sweden, which has been in business continuously for 700 years. Besides its lumber export trade of 70 million feet a year this company engages in a number of industries including mining, paper and pulp making, agriculture, and various chemical industries. It has for many years practiced scientific forestry. Every 70 or 80 years its loggers turn to the same tracts for cutting, and on its holdings the cut-over land problem does not exist.

- - - - - - -

Where the Dead Protect the Forests

In parts of northern China the dead are more effective in protecting trees than the living, writes W. C. Lowdermilk, of the University of Nanking, in American Forests and Forest Life. In certain districts where mountain lands are open to fuel gatherers temple and grave enclosures are the only places where any but the coppicing species persist.

In the Wu Tai Shan of Shensi, a mountain valley which contains 50 temples is covered with a fine stand of trees, in sharp contrast to all

adjacent lands. This forest is an excellent demonstration of the possibilities of similarly located valleys. Furthermore the reproduction of this forest is entirely natural, and it is reasonable to suppose that this stand is a remnant of a former forest cover of the entire northerly slopes of the Tsin Ling Shan. The significance of this seems to be lost on the local population. Trees in temple grounds are taken for granted, and no attempt is made to produce a forest growth on the neighboring mountain slopes, which are still subject to the ravages of the fuel gatherer.

At Chung Pu the august memory of Hwang Ti the second, a monarch of some thirty centuries past, protects a forest of cedar which surrounds his tomb and covers a mountain, standing out in the barren, treeless, loess landscape "as an emerald in a setting of old gold."

- - - - - - - - -

Mahogany Logging in Mexico and British Honduras

Revival of the mahogany industry in southeastern Mexico and British Honduras is shown by the large increase of exports during recent months over those of any corresponding period for several years. In British Honduras the cutting and exporting of mahogany logs has been one of the chief industries for a century or more. During the first half of the past century princely fortunes were quickly accumulated there in the mahogany business. At that time mahogany was largely employed in naval construction. Since iron and steel have displaced it for such use the trade has notably decreased.

The expense and difficulty of getting out the wood are now much greater than formerly. Few trees can now be found near a river of sufficient size to float the logs.

Since mahogany trees grow not in clusters but scattered promiscuously through the forests and hidden in a dense growth of underbrush, it requires a skilful and experienced woodsman to find them. The mahogany-tree cruiser has to cut his way step by step with a heavy brush knife. He seeks the highest ground, climbs to the top of the highest tree, and surveys the surrounding country. He identifies the mahogany trees within sight by the color of their foliage and notes directions and distances; then, descending, he cuts a narrow trail to each tree and carefully blazes and marks it. The axmen follow the hunter, and after them go the sawyers and hewers.

To fell a large mahogany tree is usually a day's task for two men. On account of the wide spurs which project from the trunk at its base, it is necessary to erect scaffolds and cut the tree off ten or fifteen feet above the ground.

PERSONALS

Dan B. Casement has been appointed special representative of the Secretary of Agriculture to make a review of the national forest range appraisal completed by the Forest Service in 1924. He will begin this work on or about January 1, 1926.

Mr. Casement has developed a large stock farm near Manhattan, Kans., and is engaged in the range cattle business at White River, Colo. He is a permittee on the Uncompahgre National Forest and a staff correspondent of an important livestock journal.

- - - - - - -

Grover M. Conzet has been appointed to the recently created office of commissioner of forestry and fire prevention of Minnesota, which carries with it the chairmanship of the State department of conservation. Mr. Conzet has served for two years as State forester of Minnesota.

- - - - - - -

V. H. Sonderegger has resigned his position as chief of the forestry division of the Louisiana Department of Conservation, effective October 1. On that date he will open offices in New Orleans as the southern representative of a firm of forest engineers.

- - - - - - -

Dr. Henry Schmitz, professor in forest products of the school of forestry of the University of Idaho, has accepted a new position as head of the forestry department of the University of Minnesota.

- - - - - - -

Herman H. Chapman has been elected vice president of the Connecticut Commission of Forests and Wild Life.

- - - - - - -

Verne Rhoades will leave his position as supervisor of the Pisgah National Forest on September 18, to enter the real-estate business in Asheville, N. C. Mr. Rhoades has been a member of the Forest Service

since 1909, and has taken a vital and constructive part in the upbuilding and management of the national forests in the East. He will be succeeded by M. A. Mattoon, who was previously assigned to the Pisgah for a period of five years and who for the past year has served as supervisor of the Cherokee National Forest.

- - - - - - -

Quite a number of positions in extension forestry have recently been filled. Frederick G. Wilson has received appointment as extension forester with the agricultural extension service of Wisconsin. Frederick Dunlap has been appointed extension forester of the Missouri State College of Agriculture, where he taught for a number of years. A similar position in the New Jersey State College of Agriculture has been given to E. L. Scovell and one in the New Hampshire State College of Agriculture to E. D. Fletcher. Harold O. Cook and his assistant Robert B. Parmenter are to serve as extension foresters in Massachusetts, where Mr. Cook will continue as assistant State forester. J. W. O'Byrne, who has for a number of years held the position of assistant State forester of Virginia, has been appointed extension forester with the Virginia Polytechnic Institute.

- - - - - - -

H. M. Curran has left his position as extension forester in North Carolina, but is to continue as marketing specialist of the North Carolina Department of Agriculture.

- - - - - - -